At the service load, the stress in the bottom layer strands was found to be 1,417 MPa (205.5 ksi) and 1,436 MPa (208.2 ksi), respectively, for a uncracked and cracked section.

Table 5.1 Results of Analysis for Girder before Flexural Cracking

Load and Moment before Flexural Cracking	
Decompression Moment	1892.7 ft-kips
Applied Decompression Load	98.8 kips
Cracking Moment	2253.5 ft-kips
Applied Cracking Load	121.2 kips
Stress and Strain under Dead Load	
Top Fiber Concrete Stress	-0.193 ksi
Bottom Fiber Concrete Stress	-2.897 ksi
Top Fiber Concrete Strain	-0.0000429
Bottom Fiber Concrete Strain	-0.0006423
Bottom Layer Strand Stress	184.4 ksi

Note: 1 kip = 4.448 kN; 1 ft-kip = 1.355 kN-m

To determine the fatigue overload, the stress in the bottom layer strands of a composite section (i.e., the girder with a composite deck) was analyzed first under 75% of its ultimate moment. The stress was found to be 1,504 MPa (218 ksi.). The computer program *Cracked Beam* was then used to find the required moment in the girder (noncomposite) that would cause the same stress in the bottom layer strands. The required moment and the corresponding point load were found to be 3,398 kN-m (2,508 ft-kips) and 609 kN (137 kips) respectively. In contrast, the actual applied load and moment during the test were 676 kN (152 kips) and 3,727 kN-m (2,749 ft.-kips) respectively. So the applied fatigue overload was more than the theoretical value by 11% and the girder was tested more severely than expected.